

1 U.S. ENVIRONMENTAL PROTECTION AGENCY
2 PUBLIC HEARING TO PRESENT ORAL TESTIMONY ON EPA'S
3 PROPOSED RADIATION PROTECTION STANDARDS
4 FOR YUCCA MOUNTAIN, NEVADA

5
6 Ronald Reagan Building
7 International Trade Center
8 Hemisphere B Meeting Room
9 1300 Pennsylvania Avenue, Northwest
10 Washington, D.C.

11
12 Wednesday, October 13, 1999
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1 HEARING PANEL MEMBERS:

2 Stephen D. Page

3 Mary Kruger

4 Frank Marcinowski

5 Geoffrey Wilcox

6 TESTIFIERS:

7 Steven Kraft, Nuclear Energy Institute

8 Kevin Kamps, Nuclear Information

9 and Resource Service

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11 Brian O'Connell, National Association of

12 Regulatory Utility Commissioners

13

14 Paul Farron, Individual

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16 Charles Higley, Public Citizen

17

18 Dr. Judith Johnsrud, Sierra Club, ECNP and NECNP

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1 P R O C E E D I N G S

2 MR. PAGE: Good morning. I think we're
3 going to go ahead and get started. I want to welcome you
4 to the United States Environmental Protection Agency's
5 public hearing to receive oral testimony on our proposed
6 radiation protection standards for Yucca Mountain,
7 Nevada.

8 My name is Steve Page, and I'm the
9 Director of the Office of Radiation and Indoor Air at
10 EPA. I'm here to serve as the presiding officer for
11 these proceedings. And the main purpose of today is to
12 listen to your statements, your comments on the rules and
13 we have a few things to take care of before we get into
14 that.

15 I'm going to introduce the panel. After
16 we do that I'll describe briefly our proposed regulation.
17
18 And then third I will explain the ground rules for the
19 hearings.

20 The EPA panel members with me today are
21 Frank Marcinowski to my left, who is the Acting Director
22 of the Radiation Protection Division in the Office of
23 Radiation and Indoor Air. To my right, your left, is
24 Mary Kruger, who is Director of the Federal Regulations
25 Center. And on my far left, your right, is Geoff Wilcox.

1 He's an attorney from the EPA's Office of General
2 Counsel. We can't have a hearing like this without an
3 attorney present.

4 I want to cover a little bit of the
5 background on our rule, and then we'll get into the
6 hearing procedures. Can you all hear me okay in the
7 back? Fine, okay.

8 In 1992 Congress gave EPA the important
9 task of setting standards to protect public health and
10 the environment from harmful exposure to the radioactive
11 waste that would be disposed in the proposed underground
12 repository at Yucca Mountain, Nevada. While EPA will set
13 these standards, the Nuclear Regulatory Commission has
14 the responsibility of ensuring that the Department of
15 Energy can demonstrate that the repository meets the
16 standards.

17 Siting a repository at Yucca Mountain
18 raises many complex technical, scientific and policy
19 issues. For more than five years EPA has conducted
20 extensive information gathering activities and analysis
21 to understand these issues.

22 Our goal is to issue standards that are
23 scientifically sound, that can be reasonably implemented
24 and above all, that are protective of public health and
25 the environment.

1 Our proposed standards address all
2 environmental pathways, air, water and soil. The
3 standards are designed to protect the closest residents
4 to the repository to a level of risk within the range we
5 consider acceptable for all other cancer-causing
6 pollutants.

7 The closest residents to the repository
8 are currently located at Lathrop Wells, Nevada. This
9 means that those further away would even be more
10 protected.

11 In addition we're proposing to protect the
12 valuable ground water resources of Nevada. Because the
13 proposed repository sits above an important groundwater
14 aquifer, we're proposing that this precious natural
15 resource be protected to the same limits to which every
16 other source of drinking water in this country is
17 protected. We want to provide this protection since the
18 water is currently being used for drinking, irrigation
19 and dairy cattle. In the future, this resource could
20 also supply water to many people in the fast-growing Las
21 Vegas area.

22 This proposed regulation and these
23 hearings are important milestones in a series of very
24 deliberate steps to insure public involvement throughout
25 the decision-making process.

1 We are here today to listen to your views
2 and concerns on our proposal. EPA is also seeking
3 written comments on our proposed standard, and I want to
4 reassure you that all written and oral comments will be
5 carefully considered before EPA makes a final decision.

6 Now for the hearing procedures. In this
7 public hearing no one is sworn in and there is no cross
8 examination. The speakers will be asked to present their
9 statements and should not expect a response from the
10 panel members.

11 We have a Court Reporter who will produce
12 a verbatim transcript of today's proceedings, so it is
13 important that we get a clear, uninterrupted record.

14 If you have a written copy of your
15 statement, we will be glad to accept it when you are
16 called to testify. I ask all speakers to identify
17 themselves for the Court Reporter, spell your name for
18 the record. Please speak slowly and clearly, and stop if
19 either the Court Reporter or I signal you to do so.

20 During these proceedings for clarification
21 purposes only, it may be necessary for the Court Reporter
22 or members of the panel or me to question the speakers
23 about specific statements made during their testimony.

24 As stated in the Federal Register notice,
25 speakers registering in advance are guaranteed speaking

1 time. Speakers not registered in advance may register at
2 the table outside the door and will be scheduled to
3 testify as openings are available.

4 We are scheduled to be here today until
5 5:00 o'clock, and we're going to do our best to
6 accommodate all of those wishing to speak.

7 We'll be taking a lunch break and some
8 other small breaks as needed.

9 Individuals are allowed five minutes to
10 testify on their own behalf. Those representing an
11 organization are allowed ten minutes to testify. We'll
12 be using a timer that operates similar to a traffic
13 light, which is located right here in front of me.

14 I will tell you when it is time for you to
15 begin your statement. The time keeper located over here
16 will start the timer, and the green light will appear.
17 When you have two minutes left you get a yellow caution
18 light, and you should begin your closing remarks.

19 When your time has elapsed the light will
20 turn red, and I'll ask you to stop even if you've not
21 concluded. While the time keeper resets the timer I'll
22 call the next speaker to the microphone and notify the
23 speaker when to begin.

24 Out of respect for everyone's opinions,
25 please abide by these limits so that the maximum amount

1 of people can be heard.

2 Our speakers today fall into two
3 categories, those who preregistered and those who
4 registered at the door. Once everyone who wishes to
5 testify has done so, those of you whose statements are
6 longer than five or ten minutes will be recalled and
7 allowed to continue speaking in five to ten minute
8 increments.

9 Time permitting this procedure will be
10 repeated until everyone who wishes to be heard has
11 completed their statements. I believe this system is
12 fair to everybody.

13 Our purpose today is to solicit public
14 comment on our proposed standards for Yucca Mountain, so
15 we ask you to confine your comments and remarks
16 accordingly. All of the testimony we receive today will
17 be fully considered as we move toward developing our
18 final standards.

19 I'll remind you that written comments may
20 be submitted to us no later than November 26th, 1999.
21 Anything you did not get to say today, or anything you
22 wish to say in response to what has been said here, may
23 be submitted for consideration. Information submitted in
24 writing is given the same weight and importance as oral
25 testimony.

1 Please see the information table for the
2 docket locations and hearing ground rules. A transcript
3 of today's hearing will be available for review at each
4 of the docket locations in approximately two to three
5 weeks.

6 I want to thank you for taking the time to
7 attend and testify at today's hearing, and I didn't
8 mention earlier, but this is our first hearing in a
9 series of four. This will be the only one in Washington,
10 D.C., and next week we are out in Nevada, and the week
11 after, I believe it is, we go to Kansas City for a
12 hearing out there.

13 All right, our first speaker today is
14 Steven Kraft from the Nuclear Energy Institute. Steven,
15 there is a microphone over here to the right which I
16 didn't point out to you, if that's all right.

17 MR. KRAFT: I have a copy of the view
18 graphs I'll be using, gentlemen.

19 I used to be a lot taller.

20 Good morning. My name is Steven Kraft, K-
21 r-a-f-t. I am the Director of Spent Nuclear Fuel at the
22 Nuclear Energy Institute.

23 NEI is the Washington-based association of
24 the nuclear energy industry. We have 300 members in 15
25 countries representing all the nuclear power plant

1 operators in this country, many worldwide, engineering
2 firms, radiopharmaceutical companies, universities, law
3 firms, labor unions and research laboratories. There has
4 been an extraordinary amount of interest in our
5 membership on this standard.

6 This morning I will focus on a few key
7 issues, and we will be filing a very full statement by
8 the due date as the chairman stated.

9 The EPA proposal for a repository standard
10 for Yucca Mountain is a very important step in a process
11 of providing disposal and management of the nation's high
12 level waste. Responsible disposal of spent nuclear fuel
13 is a national imperative. DOE's performance under the
14 Nuclear Waste Policy Act and its lack of performance
15 under the attendant contracts has become something of
16 legend, and I will not review that for you today.

17 I think everyone understands that there is
18 a need for this standard to be in place and to be an
19 adequate standard for that process to go forward.
20 Appropriate radiation standards are an important building
21 block in that process, and the standard is long overdue.

22 However, it is not a step in the right
23 direction. The standard as it has been proposed with a
24 separate ground water limit is very poor public policy,
25 as I will discuss in just a few minutes, and that is what

1 my remarks will focus on.

2 But as a second and equally important
3 matter, the duplication of the NRC role that EPA proposes
4 in the implementation criteria in the draft standard is
5 unnecessary and counter-productive. NRC can do a much
6 better job of implementing any standard EPA prepares and
7 promulgates if they are left to their own devices in
8 determining how to implement.

9 Having said that, let me focus on the
10 separate ground water matter, which is the key, for
11 promulgating a standard with a separate ground water
12 requirement ignores the science of the last two decades.
13 The National Academy of Science's report makes it clear
14 as to the appropriate way to approach this matter.

15 Additionally and perhaps most importantly,
16 providing a separate ground water standard actually
17 creates a standard that provides no additional public
18 health or safety benefit. By its very nature an all
19 pathway standard, which is also in EPA's proposal and in
20 the NRC proposal will protect drinking water by its very
21 nature. You have to include those facts in the all
22 pathway standard.

23 As a result you will also hinder
24 construction of the best repository. You can eliminate
25 an otherwise perfectly good repository. And importantly,

1 it ignores the law as we read it, that Section 801 of the
2 Energy Policy Act refers to the standard, EPA's, as the
3 maximum annual effective does equivalent to individual
4 members of the public as the only standard that is to be
5 effective in this way.

6 Getting to a more detailed description of
7 this, I'll offer this with some apology, it is sort of a
8 busy chart. But let me use this to explain a point that
9 we are making.

10 A separate ground water standard results
11 in less protection of the public than a single all
12 pathways standard. That sounds somewhat counter-
13 intuitive, I know, because as you go from a standard that
14 has a low quantitative number to a lower quantitative
15 number, we never talk about high quantitative numbers, it
16 appears that you are providing greater protection to the
17 general public merely because the number is numerically
18 lower.

19 But what happens is, you have to study the
20 way the designs progress as a result of doing so. First,
21 imagine a situation which we would never permit in this
22 country of having a very, very weak standard where you
23 have somewhat higher risks of health effects. We would
24 never permit that in this country, and no one is
25 advocating that.

1 And as you do things like select the right
2 site, arid, above the water table, all those features
3 that led Congress to select the Yucca Mountain site in
4 the first place, the performance of a repository
5 improves. Then you start adding design features. You
6 use a robust container, perhaps you put in a drip shield,
7 perhaps you do other, backfill, barriers, whatever it is
8 that are required, and the analysis shows that the doses,
9 the risks fall even lower, and you come to an optimal
10 point.

11 Now, let me just say that this curve that
12 we're following does not follow any easily described or
13 known mathematical relationship. It is purely a notional
14 way of describing this relationship that engineers know
15 full well in our experience in designing systems.

16 What happens is, once you pass that
17 balance point of the minimal, the minimum effect, the
18 minimum risk, you have to start adding additional design
19 features in order to meet the lower standard still and
20 further the even lower ground water standard.

21 What are those design features? Well, if
22 you look in the DOE's draft EIS, you would imagine it's
23 things like even smaller containers, spread over greater
24 land mass, and ventilation systems and all these things
25 that serve in fact to raise the calculated, statistically

1 calculated public risk.

2 Because what happens is that in this
3 particular case you would take the repository and you
4 would make it larger. And you would end up mining out
5 much greater rock and you would release far more radon,
6 thereby increasing the total dose.

7 It is the total dose from all pathways
8 that is the key in this situation, and that is why a
9 standard with the ground water, the specific ground water
10 limit in it, is far less protective than a standard
11 without.

12 Those are my comments. Thank you very
13 much.

14 MR. PAGE: Thank you, Mr. Kraft. Kevin
15 Kamps, Nuclear Information and Resource Service. Are you
16 going to be using the overheads, or --

17 MR. KAMPS: No, I'm not.

18 Shall I just begin?

19 MR. PAGE: Go ahead, please.

20 MR. KAMPS: My name is Kevin Kamps, and I
21 represent the Nuclear Information and Resource Service. I'm
22 the person on staff who works on high level nuclear waste
23 issues there.

24 I'd just like to begin by thanking the EPA
25 for releasing the standard. We as an organization have

1 been fighting for years to keep EPA as the standard
2 setter for the Yucca Mountain repository, proposed
3 repository. We feel that EPA is much better able to
4 protect the public's health and the environment than the
5 NRC, and a comment that the previous speaker made about
6 the NRC being left to its own devices really rang a bell
7 with me, because I feel like that would be leaving the
8 fox to guard the henhouse. And so we really encourage
9 EPA to continue in their role as protectors of the
10 environment, protectors of public health and we very much
11 support that.

12 And I'd like to add that that is current
13 United States law, which we have also struggled as an
14 organization with members in 50 states to uphold, that
15 EPA be the standard setter. That is Congress' law and
16 there have been efforts to change that law, and we have
17 tried to protect the environment by upholding EPA as the
18 standard setter.

19 So with that said, I would like to address
20 the proposed rule for Yucca Mountain that has been
21 recently released. We do have concerns with this. Even
22 though we do fully support EPA as the standard setter, we
23 have concerns with the proposed rule. That's what I'd
24 like to share with you.

25 One of the first concerns that we have is

1 in regards to the time cap on the repository. We feel
2 that a 10,000 year time cap is an arbitrary determination
3 that falls far short of the needed standard. The highest
4 releases, the highest doses to the public, will occur
5 after the 10,000 year time cap.

6 The National Academy of Sciences has
7 recommended that the compliance period for the proposed
8 repository at Yucca Mountain last as long as peak doses
9 would occur. Which could be at a point 100,000 years
10 after emplacement. And the 10,000 year time cap falls
11 far short of that, so we strongly encourage the EPA to
12 rewrite this section of the proposed rule to fully
13 protect public health and the environment by taking into
14 consideration the long time frame in which peak doses
15 would occur down the road.

16 A little conversation I had in the office,
17 we came up with an analogy for the present 10,000 year
18 time cap. It's like saying that as long as the kids wait
19 until their parents leave for the evening, it is okay if
20 they destroy the living room furniture or burn down the
21 house. So just to help you see how we feel about this.

22 Our second concern addresses the dilution
23 factor that's involved. We're wondering what good the
24 site boundary is if the measurement is going to be made
25 20 kilometers downstream. So we feel that dilution is

1 not the solution to pollution. We feel that the
2 compliance point should be either on-site or at the site
3 boundary, and not at such a far distance away.

4 We feel that that would set, as with the
5 time cap, a very poor national and international
6 precedent with not just in terms of high-level nuclear
7 waste storage, which would be a very bad precedent
8 worldwide, but also in terms of other environmental
9 issues. Other hazardous waste sites.

10 A third concern that we'd like to address
11 is who will receive the dose. We feel that the
12 reasonably maximally exposed individual as discussed in
13 this proposed rule may be the right terminology but it's
14 the wrong definition. We call on EPA to make the
15 reasonably maximally exposed individual the fetus
16 carried by the subsistence farmer, because this
17 individual would be much more vulnerable to harm from
18 radiation than would be the assumed world residential
19 assumption in this proposed rule.

20 And we feel that the assumption that world
21 residential will carry for centuries and thousands of
22 years and tens of thousands of years is not right. It's
23 much more appropriate to assume a subsistence farmer
24 scenario.

25 In terms of specific groundwater

1 protection, we fully support EPA in establishing ground
2 water protection for this site. Again, it gets back to
3 the precedent that would be set not only for nuclear
4 waste but for other forms of hazardous waste. We feel
5 that not to do so would create the biggest loophole of
6 all for Yucca Mountain, since it's known that the most
7 massive releases and doses to the public would come
8 through the ground water used as drinking water but even
9 more significantly, to irrigate crops which would
10 concentrate radionuclides in the food.

11 In terms of human intrusion, our proposed
12 standard for EPA to call for is continued regulatory
13 guardianship into the distant future for this waste.
14 Gold mines are to be seen within site of Yucca Mountain
15 from the present day, and in addition in the future it's
16 possible for water to be drilled even at the foot of
17 Yucca Mountain. We don't believe it would be drilled
18 from the top, of course, but certainly at the foot of
19 Yucca Mountain it's possible that wells could be sunk.

20 And so we feel that one intrusion is not
21 enough to assume, but it should be assumed, possible
22 multiple intrusions over time, and for that reason
23 continued regulatory guardianship is required.

24 In terms of who will set the standard,
25 NIRS for many years has advocated that whoever will do it

1 right is the agency to set the standard for Yucca
2 Mountain. Whoever will protect the environment, whoever
3 will protect the public health to the fullest extent of
4 the law, and for a lot of the reasons that I've mentioned
5 we feel that the standard should be a standard, and
6 should not be weakened to such a point that it's not a
7 standard any more. That's what standards are for, to
8 eliminate inappropriate sites from consideration.

9 And there has been a pattern and a
10 pressure for many years building up from sources like the
11 nuclear industry and nuclear proponents and government
12 agencies to weaken the standards enough for Yucca
13 Mountain to make it acceptable for the dumping of nuclear
14 wastes.

15 We feel that the standard should be
16 legitimate and if that were the case, that Yucca Mountain
17 would be eliminated from consideration for the national
18 repository. And for this reason we joined with over 200
19 other environmental organizations, public interest
20 organizations in December of 1998 calling for the
21 disqualification of Yucca Mountain from consideration
22 based upon the fast flow of water through the mountain to
23 the waste repository level within the mountain.

24 Under current DOE guidelines that is a
25 disqualifying factor for a repository, and we called upon

1 the Secretary of Energy to disqualify the Yucca Mountain
2 site based upon the fast flow of water to the repository
3 level.

4 And this was seen, of course, when
5 chlorine-36 was discovered deep within the bowels of the
6 mountain, which was less than five decades old. So
7 instead of it taking 1,000 years for water to reach the
8 waste, it had only taken some 50 years for this rainwater
9 to make it all the way down to the waste level in the
10 mountain.

11 And based upon the politics that have
12 driven the choice of Yucca Mountain from the beginning,
13 we feel that standards should be science-based, not
14 politically driven, economically driven or driven by
15 expediency.

16 And so for all of these reasons, we
17 commend EPA for being a standard setter, and thank you
18 for this hearing.

19 MR. PAGE: Thank you, Mr. Kamps.

20 The next speaker is Brian O'Connell from
21 the National Association of Regulatory Utility
22 Commissioners.

23 MR. O'CONNELL: Good morning. My name is
24 Brian O'Connell, O, apostrophe, C-o-n-n-e-l-l. I'm the
25 Director of the Nuclear Waste Program office at the

1 National Association of Regulatory Utility Commissioners.
2 We're headquartered here in Washington, D.C. I'd like to
3 submit my written testimony into the record.

4 NARUC is a quasi-governmental non-profit
5 organization founded in 1889. Within its membership we
6 have governmental bodies in the 50 states engaged in
7 economic and safety regulation of carriers and utilities.
8 The mission of NARUC is to serve the public interest in
9 seeking to improve the quality and effectiveness of
10 regulation in America.

11 More specifically, NARUC is comprised of
12 those state officials charged with the duty of regulating
13 the retail rates and services of electricity, gas, water
14 and telephone utilities operating within their respective
15 jurisdictions. We do not consider ourselves a nuclear
16 proponent.

17 Utility rate payers are stakeholders in
18 the matter of the disposal of nuclear waste. On their
19 behalf we have followed this matter very closely since
20 well before the passage of the Nuclear Waste Policy
21 Act in 1982, because at least 34 states which have
22 nuclear power plants also have nuclear waste from spent
23 fuel from those plants stored at reactor sites that were
24
25

1 never intended for permanent indefinite storage of such
2 materials.

3 By passing the Nuclear Waste Policy Act in
4 1982, Congress established a national policy to
5 permanently dispose of spent nuclear fuel and other high-
6 level radioactive waste in a geologic repository
7 beginning in January, 1998, the Department of Energy was
8 responsible for meeting that milestone. That law also
9 assigned a responsibility for setting the radiation
10 standards for the repository to EPA. It further
11 established the Nuclear Waste Fund as the mechanism to
12 pay for the packaging, shipping and emplacing of spent
13 fuel and other waste in the repository.

14 For various reasons, the federal agencies
15 have not met their schedules. But let me assure everyone
16 present that the payments into the Nuclear Waste Fund did
17 begin in 1983, and have now accumulated to over \$15
18 billion, which continues to be collected and will be.

19 Those payments are made through
20 electricity rates paid by rate payers who consume
21 electricity generated by nuclear power plants. It is on
22 their behalf that I am here this morning.

23 Our message is simple. We want the
24 repository built in a safe, economic and expedient manner
25 as required by the Nuclear Waste Policy Act, and whatever

1 other laws and regulations will apply. We want the waste
2 moved from its present locations as soon as possible.

3 The Department of Energy schedule for
4 opening the repository at Yucca Mountain is 2010 at
5 the earliest, which is 12 years past the date Congress
6 directed in 1982. We urge that the federal government
7 establish radiation standards for the Yucca Mountain
8 repository that enable the department to design and build
9 the repository to first of all serve its purpose, and
10 protect public health and safety for present and future
11 generations to the extent reasonably foreseeable given
12 the uncertainties of the thousands of years the waste
13 must be isolated from human contact.

14 I'd like to address the radiation
15 standards for Yucca Mountain. We're still reviewing the
16 proposed rule, and we intend to provide written comments
17 by the end of the comment period. My comments today
18 reflect our first reactions and raise some questions
19 based on our attempt to understand the proposed
20 regulation. I'd like to touch on some key points of
21 concern.

22 First of all, what is the standard
23 attempting to protect? The proposed rule seems to set a
24 limit on doses of radiation to various populations for
25 various pathways to human contact. The levels would be

1 measurable doses over an annual period.

2 In the discussion accompanying the
3 proposed rule, EPA described its understanding of a
4 possible relationship between dose levels and the risk of
5 cancer in certain populations. Apparently EPA seeks to
6 protect the public from additional risks of cancer
7 attributable to just the Yucca Mountain repository. That
8 is to say, it seeks to limit the additional risk of
9 cancer that may occur only due to this facility.

10 However, it is our understanding that the
11 linkage between dose and risks is not fully agreed among
12 the experts in radiation health. Notwithstanding,
13 various proponents of one dose level or another want to
14 set a limit at a finite level below which it's safe, and
15 above which is not allowed.

16 We further understand that there is
17 uncertainty in the repository design over what level of
18 radiation will reach human contact at what uncertain time
19 in the 10,000 year period of the repository performance.

20 As a non-expert I simply wonder how will
21 this be demonstrated, how will this compliance be
22 demonstrated, in the repository design by DOE and in the
23 licensing by the NRC.

24 In our written testimony we address the
25 following points: When and where might the exposure

1 levels exceed standards; we find that the intrusion
2 scenario seems even harder to prove or disprove if not
3 simply being far-fetched. The water supply assumptions
4 seem inappropriate to the Yucca Mountain area, in that
5 you hypothesize a much greater increase in the
6 population in the area than I believe is foreseeable.

7 As to the standards themselves, it's hard
8 to believe it's taken the federal government 17 years to
9 develop a radiation standard for Yucca Mountain, in that
10 it is still a source of disagreement among technical
11 specialists and policy-makers alike.

12 We know that the NRC, whose experience and
13 expertise in radiation matters predates the establishment
14 of EPA, and has issued a statement in August that a
15 maximum level of 25 millirem per year will fully protect
16 public health and safety, and that there is no health and
17 safety reason to have a separate ground water protection
18 standard. We note with some dismay that both the NRC and
19 EPA cite the same National Academy of Sciences study to
20 support their respective positions.

21 We are further perplexed by references in
22 the discussion of the proposed rule in Section 3(b)(2)
23 and table one, such as -- and I had to read this several
24 times, I'm still not sure I understand it -- you say we
25 estimate that the 25 millirem per year whole body dose

1 limit established in 1985 is essentially equivalent to
2 the risk associated with today's 15 millirem CEDE per
3 year.

4 Those of us unfamiliar with radiation
5 health science find it difficult to understand what the
6 difference really is, since we're unsure what the CEDE
7 really means. There's a public communications concern
8 here.

9 What is a reasonable standard, you ask.
10 In the proposed rule, EPA asks, is our proposed standard
11 of 15 millirem CEDE reasonable to protect both
12 individuals and the general public. Our answer is, we
13 answered it in this fashion: If it can be achieved at
14 Yucca Mountain it may be reasonable. We find no basis to
15 see why 25 millirem is not just as reasonable.

16 For example, the NRC which has competence
17 in this area, has stated that that level is adequate. We
18 note that the level is consistent with international
19 standards. We are aware that any analysis that shows
20 what incremental benefits would be between 15 and 25
21 millirems, we're unaware of such an analysis compared to
22 the incremental costs to achieve such benefits. And the
23 relationship between dose limits and cancer risks is
24 still subject to debate.

25 In sum, we are inclined to support the

1 level of 25 millirem as an adequate standard for use in
2 planning and licensing of the Yucca Mountain repository,
3 unless the NRC finds that another standard is more
4 appropriate. We have confidence in their ability to make
5 a sound professional judgment in the consideration of all
6 costs and benefits when licensing the repository for
7 spent nuclear fuel and other high-level radioactive
8 wastes.

9 We therefore urge that the annual dose
10 standard for the general public in a reasonably maximally
11 exposed individual be changed to 25 millirem or such
12 level that the Nuclear Regulatory Commission considers
13 adequate. Further, we recommend that the section on
14 ground water standards be deleted from the proposed rule.

15 We'll expand our comments in writing by
16 the end of the comment period, after we've had an
17 opportunity to reflect on what we hear today and study
18 the proposed rule more fully.

19 Thank you very much for your hearing.

20 MR. PAGE: Thank you, Mr. O'Connell.

21 Mr. Farron, Paul Farron.

22 MR. FARRON: Before I comment on the
23 proposed radiation standard, I think it's important to
24 talk about how we got here in the first place,
25

1 specifically with respect to the politics that played
2 into the decision to construct a geological repository
3 for spent nuclear fuel.

4 As you know, actions leading to the
5 passage of the 1982 Nuclear Waste Policy Act began in
6 earnest with nuclear proliferation concerns coming out of
7 the Carter administration, culminating in the
8 presidential order indefinitely postponing spent fuel
9 reprocessing. Carter's actions forced political
10 involvement in the highly technical and scientific issue.
11 Politicians were now into details. The federal
12 government strengthened its position in taking title and
13 spent fuel storage provisions.

14 The federal focus began shifting to a
15 permanent geological repository as the ultimate
16 disposition of spent nuclear fuel. By 1982 Congress was
17 compelled to take legislative action in the wake of
18 diverse scientific opinions, public health and safety
19 concerns, and the federal government's continued
20 involvement and commitment to provide an ultimate
21 disposition of spent nuclear fuel.

22 Thus in 1981 Congress passed the Nuclear
23 Waste Policy Act, imposing a political solution to a
24 scientific and technical issue. Utilities, that being
25

1 licensees, had to sign on to this agreement or face plant
2 shutdowns. The utility that I work for eventually signed
3 this agreement under protest.

4 The standard contract holders now had to
5 live with a political resolution and try to make it work
6 with the Department of Energy. Over the last 17 years
7 contract holders still have had to live with this
8 political solution, and many now actually embrace it.

9 Now, in 1999, the EPA has finally proposed
10 a radiation standard for geological repositories.
11 Unfortunately we are again looking at a political driven
12 rather than a scientific resolution of this issue. The
13 reality is that the risk to the public from a geological
14 repository is essentially the same whether the limit is
15 25 millirem, 15 millirem, four millirem or 35 millirem.
16 The difference in the numbers is actually the cost that
17 it imposes on the construction of the repository, not the
18 radiological risks to the public.

19 If EPA was really concerned about the risk
20 to the public, they would focus their attention on
21 tobacco products which affect air quality and
22 consequently radiation exposure to the public.

23 If you're involved in this at all, you
24 know that the average annual effective whole body dose
25 received by a smoker is 1,300 millirem; that the dose to

1 the lungs is 60 millirem, and this is on an annual basis.
2 Non-smokers are also affected to a lesser degree to
3 exposure by second-hand smoke.

4 There are many consumer products,
5 pollutants and other considerations such as where we
6 choose to live that make a potential annual dose of 15
7 millirem or 25 millirem from a repository seem to be in
8 the noise (sic).

9 In summary, I don't think that two poor
10 political actions, this being one, make a right. EPA
11 needs to be realistic and use accepted, already
12 conservative, international standards for Yucca Mountain
13 and other geological repositories.

14 Thank you for your time.

15 MR. PAGE: Thank you, Mr. Farron.

16 The next speaker is Charles Higley.

17 MR. HIGLEY: Good morning. My name is
18 Charlie Higley, and I'm a Research Director with Public
19 Citizen. Public Citizen is a consumer advocacy
20 organization that was founded by Ralph Nader in 1971.
21 The correct spelling of my last name is H-i-g-l-e-y.

22 Thank you for this opportunity to testify
23 regarding the U.S. Environmental Protection Agency's
24 environmental radiation protection standards for Yucca
25

1 Mountain, Nevada.

2 EPA's proposed rule would set standards
3 for radiation exposure from a proposed storage facility
4 for high-level nuclear waste at Yucca Mountain, and we
5 support EPA's role in helping to set these standards.
6 Nevertheless, we believe that EPA's proposed rule is too
7 lenient and would likely lead to serious health problems
8 for people living near the nuclear waste dump and for
9 people using products produced near Yucca Mountain.

10 EPA's proposed rule fails to establish a
11 radiation standard up to the peak period of radiation
12 exposure. Models of Yucca Mountain prepared by the U.S.
13 Department of Energy suggest that the peak exposure to
14 radiation will occur after 300,000 years.

15 Further, DOE predicts that radiation doses
16 at 100,000 years will be 500 times larger than doses
17 during the first 10,000 years after the facility is
18 opened.

19 However, EPA's proposed radiation standard
20 would cover only the first 10,000 years after the nuclear
21 waste dump is opened. No radiation standard would be in
22 place for the 290,000 years prior to what models predict
23 to be the peak period of radiation exposure.

24 Not only would EPA's propose rule fail to
25 promulgate a standard for countless generations, EPA's

1 proposed rule is contrary to a recommendation by the
2 National Academy of Sciences that the radiation standard
3 should protect public health through the peak period of
4 exposure to radiation.

5 Another concern is EPA's decision to
6 measure the radiation dose 20 kilometers or about 12
7 miles from the border of the nuclear waste dump instead
8 of measuring radiation at the dump's border.

9 As stated in the proposed rule, the
10 purpose of the geological repository is to contain and
11 isolate the deadly waste. Therefore the radiation should
12 be measured at the edge of the dump and not a dozen miles
13 away.

14 On a related issue, the EPA has set a
15 standard for radiation in ground water, four millirems.
16 But the EPA standard would allow ground water close to
17 the nuclear waste dump to contain higher levels of
18 radiation. In other words, EPA is hoping that any
19 radiation leaking from the dump and into the ground water
20 will be diluted by the time it reaches the wells used by
21 neighboring communities for drinking and irrigation
22 water.

23 Given the uncertainties in predicting how
24 slow or fast radiation will travel through the ground
25 water over the next several hundred thousand years, the

1 EPA should set a radiation standard that does not depend
2 on dilution for protecting public safety.

3 Also I'd just like to add that it seems
4 fairly obvious that ground water will be how radiation
5 escapes from the nuclear waste dump and into the
6 surrounding environment. Therefore it makes perfect
7 sense, there should be a ground water radiation standard,
8 and we applaud EPA for its efforts in that direction.

9 Thank you very much.

10 MR. PAGE: Thank you. The next speaker is
11 Judith Johnsrud.

12 DR. JOHNSRUD: My name is Judith Johnsrud.
13 J-o-h-n-s-r-u-d. I am a geographer, and my doctoral work
14 was focused on the geography of nuclear energy, and I've
15 spent some 30-plus years involved in this issue.

16 I am representing today the Sierra Club.
17 I've been chairing the National Nuclear Waste Task Force
18 of the club and am vice chair of the Pennsylvania
19 Chapter. I also am representing the Pennsylvania based
20 Environmental Coalition on Nuclear Power founded in 1970,
21 and have been asked also to represent the New England
22 Coalition in Nuclear Pollution, also founded in 1970.

23 My views are indeed my own. I, however,
24 think I will be representing those of these
25

1 organizations, each of which will be filing separate
2 comments in response to all of your questions by the
3 deadline. However, because I think that most of the
4 public has been unaware of, well, perhaps not of the
5 issuance of the draft standard, but of your schedule for
6 hearings and the deadline for comment, I would ask right
7 now that EPA extend the comment period so that those
8 throughout the nation, not just here in Washington, and
9 Las Vegas, but also throughout the entire nation have an
10 opportunity for comment. I just don't think they are
11 aware, and certainly a great many people other than those
12 in Nevada and here have a deep concern.

13 I want to offer a strong support to EPA in
14 all of its standards settings endeavors. We really feel
15 that this is the only organization that takes quite
16 seriously its responsibility for protection not only of
17 public health but also of the environment. And I must
18 add, in response I think to an earlier comment, there is
19 a deep concern that the Nuclear Regulatory Commission has
20 not only a charge in law for development to the maximum
21 extent of the nuclear industry, but also lacks the people
22 with the pertinent backgrounds for careful and proper
23 assessment of radiation injury to people and the
24 environment.

25 The agency tends to be composed of nuclear

1 engineers rather than radiation biologists, medical
2 doctors, pediatricians, geneticists and those are the
3 area of concern.

4 While we are exceedingly supportive in our
5 organizations of EPA, at the same time we are
6 disappointed that this standard, proposed standard does
7 not achieve what many of us believe is required for the
8 proper protection of both people and the environment with
9 respect to radiation exposures.

10 Certainly the decision to go with the RMEI
11 as opposed to an average number of the critical group is
12 a substantial improvement, and we're pleased to see that.
13 However, the definition of the reasonably maximally
14 exposed individual doesn't take us where we believe a
15 proper policy of prudence with regard to protection would
16 end up. And that would indeed be with protection of the
17 embryo and fetus during the critical periods of
18 gestation. The mother equally as a critical factor
19 should be considered not just the presumably male farmer.

20 The calculation of the dose at a
21 substantial distance from the site we find also to be a
22 failing. The present patterns of population and of land
23 use unquestionably will vary over time. And thus we need
24
25

1 to take into consideration a potentiality for changes
2 that would permit the uses of land closer to the boundary
3 of the site.

4 In fact, perhaps a more extreme but
5 reasonable view would be that the calculation of dose
6 should begin at the site of release, from within the
7 repository.

8 I am troubled at the use of present-day
9 circumstances. Certainly within 100 years or much less
10 we've seen vast alterations of land use or technological
11 capabilities, of population life styles, of all sorts of
12 characteristics of people and places. And while we
13 recognize the near-impossibility of any realistic
14 prediction over even 10,000 years, nonetheless the
15 prudent course of action, we believe, would be to take
16 the most conservative approaches, taking into account not
17 just cancer incidence or lifetime probability of fatal
18 cancer, but also other aspects of radiation injury in the
19 most conservative form.

20 This would include a recognition of other
21 forms of damage to human health apart from fatal cancers.
22 And I believe that there is increasing evidence that low
23 dose impacts are indeed effective in causing or being
24
25

1 related to other illnesses apart from cancers that are
2 injurious to human health. We take little consideration
3 of the totality of genetic impact of radiation exposure.
4 And these I believe need a much more careful
5 consideration.

6 In addition, I would add from a symposium
7 earlier this year that -- a international symposium on
8 ionizing radiation -- that the progressive regulators
9 elsewhere in the world appear to be starting to take into
10 consideration the impacts of radiation upon all
11 components of the biosystem. Protection of the
12 environment for the sake of its inhabitants, not just
13 humans.

14 Now, that's a big order given the
15 limitations under which EPA must operate with respect to
16 the law. However, it would be appropriate for there to
17 be a more careful consideration of the impacts associated
18 not only with the radiation from this locality, but also
19 the potential for many additive sources as we see
20 currently, the move toward deregulation of radioactive
21 materials and wastes which will inevitably add to the
22 dose commitments for humans and for the environment,
23 various aspects which in turn may impact upon human
24 health.

25 So we encourage EPA in a revision of this

1 standard, which by the way we welcome after a long, long
2 wait. But we encourage EPA to rethink, certainly to
3 retain the ground water standard. That is extremely
4 important. We commend you on following the law, but also
5 to move toward what is to the precautionary principle, a
6 maximizing of conservatism.

7 On behalf of these three organizations, I
8 will be submitting additional comments in writing, and
9 others within the organization will be doing so as well.
10 And I do encourage you to extend the comment period.

11 And thank you very much.

12 MR. PAGE: Thank you. Do we have any
13 other speakers that came here today? The method that we
14 have is for people to register in the back before you
15 speak, but we can take care of that if folks are here to
16 make a statement, and we can get you registered.

17 That's the end of our folks that pre-
18 registered, so what we'll do is, if there is nobody here
19 today -- I'm waiting for any hands, or if anybody missed
20 the first call -- I don't see anybody here that's wanting
21 to speak right now.

22 What I think we'll do is take just a short
23 ten-minute break and we'll be back, and by then maybe
24 some people have registered.

25 We'll adjourn for ten minutes, for a

1 break. Thank you.

2 (Brief recess.)

3 MR. PAGE: I'd like to reconvene here. It
4 was a little bit longer than ten minutes, but I was of
5 the understanding and I think it's still current that
6 there are no new speakers signed up at this time.

7 So what I would like to offer, is folks
8 that spoke earlier that would like to elaborate on their
9 oral statements, those representing organizations would
10 be for ten minutes, individuals for five minutes, and
11 give folks an opportunity to do that. And then second,
12 if there are no more speakers signed up at this time, or
13 there are no further statements, what we'll do is
14 probably just be in temporary adjournment until folks do
15 show up.

16 We will be here waiting for people's
17 comments, but rather than doing a series of ten-minute
18 incremental breaks we'll be here on hand, and as people
19 show up that want to testify, we will reconvene.

20 Let me check one more time; is there
21 anybody new here that has not spoken that wishes to
22 speak?

23 (No response.)

24 Is there anybody this morning that wishes
25 to elaborate on their oral testimony? Mr. Kamps. Let me

1 just make sure, is Mr. Kraft still here? If we do some
2 semblance of order, I'll give him an opportunity. I
3 don't see him.

4 All right, Mr. Kamps, you have another ten
5 minutes if you'd like, and Ms. Johnsrud, you would like
6 to speak as well?

7 DR. JOHNSRUD: Yes.

8 MR. PAGE: Okay, very good. This is Mr.
9 Kamps from the Nuclear Information Service.

10 MR. KAMPS: I'll do it right this time. I
11 forgot to give my name earlier. My name is Kevin Kamps,
12 and it's K-a-m-p-s as in Sam on the end. And my
13 organization is the Nuclear Information and Resource
14 Services, based in Washington, D.C., and we have members,
15 we're a member-supported organization. We have members
16 in 50 states, and we're 21 years old as an organization.
17 And we've been involved in this issue of high-level
18 nuclear waste since the beginning of our organization,
19 and that is my position at NIRS, the high-level waste
20 issue.

21 And I just wanted to come back up, because
22 some of the things that were said today kind of lit
23 lightbulbs in my head, and I wanted to make some
24 commentary on those things. There is no particular
25 order, I just took notes.

1 So one of the first things I wanted to
2 comment on was a statement made, Mr. O'Connell, was that
3 your name? About utility consumers across the country.
4 And I'm recently arrived to Washington to work for NIRS.
5 I only started in June, and before that I was born and
6 raised in Kalamazoo, Michigan, and our utility company
7 out there is Consumer's Power, now called Consumer's
8 Energy, which operates the Palisades Nuclear Plant and
9 also the Big Rock Nuclear Plant which is now closed down,
10 but Palisades is still operating. And that's located
11 just 40 miles from Kalamazoo, on the shoreline of Lake
12 Michigan.

13 And that's how I got involved in all this
14 stuff. For the past ten or 15 years, since I was in high
15 school actually, I became concerned about the nuclear
16 waste issues associated with Palisades. And so I just
17 wanted to point out, and that's been said by our
18 Congressman from Michigan, Congressman Upton who is the
19 sponsor of the bill in Congress that would target Yucca
20 Mountain as the waste site for the nation as well, he
21 often says in public that we're getting the waste out of
22 Michigan and off the shoreline of Lake Michigan, and this
23 is a good thing. And the people in Michigan love this,
24 and every chance that I get to say, the people in
25 Michigan who have fought the waste and who have been most

1 concerned about the waste are the ones who also are
2 concerned for the people of Nevada.

3 And before I came to Washington I was in
4 an organization called Don't Waste Michigan, which was
5 very involved in trying to get an injunction against the
6 loading of the spent fuel casks at Palisades, the
7 argument being that there was no safe way to unload these
8 casks, that was clear.

9 And we lost in the federal courts, and
10 Consumer's Energy and the NRC told the judge that if
11 there was a problem with the waste casks that they would
12 simply reverse the process and unload them.

13 Well, when the fourth cask was loaded and
14 found to be defective, it was clear that they didn't have
15 a safe way to unload the casks, and so I just wanted to
16 point out that utility consumers across the nation and
17 Michigan, and I know a lot of them in that area, are very
18 concerned about safety first, and economic considerations
19 should not be placed above safety.

20 Another comment I have is about the
21 uncertainties of 10,000 years, and I just wanted to re-
22 emphasize something that was said by Dr. Johnsrud that,
23 given the uncertainties, that the most conservative
24 standard should be applied, not lesser standards because
25 of the uncertainty.

1 Another comment I wanted to make that I
2 forgot to earlier was something that occurred to me as I
3 was reading the proposed standard. In a number of
4 places, and I wish that I could read it word for word, it
5 said that a lot of the decisions to be made are policy,
6 perhaps even more so than science in regards to Yucca
7 Mountain. And one of the statements that was made also
8 was that it's what society will accept that will
9 determine whether we go forward with this or not.

10 And it brought to my mind something that I
11 wanted to share with everyone. And that was a quote from
12 Frederick Douglas, who was the abolitionist during
13 slavery in this country, a freed slave himself. And
14 again, I don't have the verbatim quote, but his point was
15 that given the struggle, the power struggle between the
16 haves and the have-nots or the oppressors and the
17 oppressed in this country, and his context of course was
18 slavery, but it applies to other issues as well.

19 His point was that the oppressors or --
20 yeah, the oppressors, will try to get away with as much
21 as they can so long as the oppressed don't fight back.
22 And so when I read that comment in the EPA proposed
23 standards, that it will be a societal decision whether we
24 go forward or not, whether this level of dose to the
25 public is acceptable, it just brought that up to my mind,

1 and I just would like to share that. We would like to
2 get a lot more people involved in this issue, and the
3 kind of - it harkens back to also the low attendance
4 today from the public and from public interest
5 organizations.

6 To my knowledge the Federal Register
7 notice for this public hearing only came out on October
8 1st, and I know that a number of organizations who would
9 otherwise be here are very busy right now working on the
10 CTBT, which is in crisis mode. And so for that reason a
11 lot of our allies in this struggle are not here today.
12 But I'm sure that they will submit written comments as
13 will we before the deadline.

14 But I would like to add to what Dr.
15 Johnsrud said, that an extension of the comment period
16 would be helpful for all of our organizations to do the
17 best job that we can.

18 Just to re-emphasize, the 20-kilometer
19 compliance point for us really represents a nuclear
20 sacrifice zone. And we feel that the point of compliance
21 should be at the boundary of the waste site. Otherwise
22 calling it boundary really is meaningless, because the
23 boundary would then be at 20 kilometers, not at the so-
24 called footprint. The footprint would be 20 kilometers
25 in radius at that point.

1 Another point is in regards to the
2 relationship between Yucca Mountain and WIPP, just a
3 question again about the point of compliance. How can or
4 why would Nevadans be less deserving than the New Mexicans
5 for protection, and so why would there be a difference
6 between the point of compliance between Yucca Mountain
7 and WIPP?

8 Another point that I think is very
9 significant is that again, only blatant fatal cancers are
10 being considered under this proposed rule as a
11 significant health impact, and I would like to echo what
12 was said earlier, that there are a number of other
13 injuries related to radiation that should be considered
14 that are very important issues of public health.

15 I wanted to point out also that Yucca
16 Mountain does not exist in a vacuum out there. The
17 Nevada Test Site is right there. The low-level nuclear
18 dump is right there. And also the opening of the
19 floodgates that's being pushed in terms of release of
20 radioactive materials into society. All of these
21 multiple exposures should be considered in a connected
22 way, and not in isolation from each other. The impact of
23 multiple exposures.

24 And a last point is the biosphere
25 considerations, the changing of climate over time is very

1 significant. The possibility that glaciation will occur
2 on this continent again, and that that area could become
3 a temperate region with much heavier rainfall and bodies
4 of surface water, in which case the exposure scenarios
5 would change drastically, and the public could be much
6 more exposed to doses of radiation.

7 Oh, one more point. In regards to other
8 living organisms in the environment, again the constraint
9 is placed on EPA about what they can consider, but these
10 are very significant issues as well, and could be
11 addressed even if not legally binding upon the repository
12 project, but certainly could be brought up as issues to
13 be considered at the Yucca Mountain site.

14 Thank you.

15 MR. PAGE: Thank you. Dr. Johnsrud?

16 DR. JOHNSRUD: Hi again, my name is Judith
17 Johnsrud. And I too have several points that I'd like to
18 mention and that are brought to mind by other speakers.

19 First, 17 years seems a long, long time,
20 but we're dealing with issues in which the peak dose is
21 anticipated to be well beyond 100,000 years. It is
22 almost beyond human imagination to have assumed that we
23 could solve the problem of geologic disposal within fewer
24 than 20 years. And therefore my expectation is that we
25 may see a good many more iterations of this effort.

1 Don't feel too glum. We're getting
2 somewhere, perhaps, but I think that we may have indeed a
3 long way to go. And in that regard I want to make it
4 clear that none of the organizations that I'm associated
5 with is in any way supportive of the approval of Yucca
6 Mountain. We do believe that there is now adequate
7 information available, when we combine the physical
8 factors as Mr. Kamps has just mentioned of climate
9 change, of the geologic instability of the area.

10 When one stands atop Yucca Mountain as our
11 Sierra Club Nuclear Waste Task Force did a couple of
12 years ago, and counts the cinder cones that are visible
13 within a few miles, it's pretty clear that this is indeed
14 a geologically uncertain location for radioactive waste.

15 In addition to all of the problems,
16 geologic problems that have been uncovered within the
17 past few years, just consider: Had DOE moved ahead very
18 rapidly initially, without the confirmatory or non-
19 confirmatory research that has been done, we might have
20 found that we were indeed deep into a much more costly
21 mistake, both in terms of eventual damage to human beings
22 and the cost for redoing the job. Better to iterate now
23 and reiterate than find that we have proceeded falsely.

24 So I'd add that to the precautionary
25 principle in general.

1 Third, and again, these are not in a
2 particularly proper order, isolation of radioactive waste
3 or any other hazardous material means exactly that.
4 Isolating the material from the biosystem. And that
5 means zero release, which in turn means a zero dose from
6 that source.

7 We've already taken a tremendous
8 compromise with the very notion of isolation of the
9 waste, and failing to define disposal as isolation for
10 the full hazardous life of the waste.

11 In addition, while we're looking at the
12 reasonably maximally exposed individual, there is a
13 concern about overall population dose that does not seem
14 to have been given due consideration. The produce of the
15 Amargosa Valley already ends up in the Los Angeles
16 markets, and again, given the potential for climate
17 change, for alterations of land use, that could become a
18 more significant factor, particularly when we add in the
19 anticipated additional doses from deregulated materials
20 that may be recycled into consumer products over time,
21 and many other sources of ionizing radiation, and
22 alternatively, other contaminants.

23 I intended to mention earlier that at the
24 international symposium on ionizing radiation last
25 spring, which by the way the Nuclear Regulatory

1 Commission totally failed to attend, but Ms. Ferguson was
2 there for EPA, there was substantial discussion not only
3 of the additive impacts of multiple sources of exposure,
4 but of the necessity for much greater attention to the
5 synergies, the synergisms between and among radiation
6 interacting upon and with the variety of other
7 contaminants within the biosystem, to which the
8 individual is exposed.

9 After all, it is the ultimate set of
10 exposures to damaging materials upon an individual and
11 the offspring of that individual that are of our concern
12 in human health protection.

13 We have the issues of decommissioning and
14 the ongoing disagreement between NRC and EPA over the
15 decommissioning standard, and I want to note here that
16 there are states that now are looking well beyond even
17 EPA's 15 millirem, four millirem, ground water. The
18 State of Massachusetts to my understanding has adopted a
19 ten millirem exposure with respect to a decommissioned
20 site that would currently be used in the future for, in
21 the near future, for release and occupance.

22 So far from being overly conservative, the
23 argument may well be made that EPA's 15 millirem plus the
24 ground water standard is quite far from being
25 conservative enough to satisfy the concerns of states.

1 With regard to the Yucca Mountain area, I
2 don't think -- particularly for people in the east --
3 that arid lands are wastelands that can well be
4 sacrificed to this damaging or potentially damaging, if
5 you prefer, utilization. And I would like to remind us
6 again that arid lands are, along with the cold lands of
7 the world, really the most fragile of all ecosystems.

8 Easily damaged, difficult if not
9 impossible to repair, and perhaps that word "footprint"
10 is quite appropriate. The footprint of a human being in
11 a desert land may last a very, very long time.

12 Finally, two last points. I come from
13 reactor communities and reactor concerns. I'm deeply
14 troubled at the likelihood that reactor sites that were
15 never designed for waste isolation, even for waste
16 storage, will by default become sites that as the
17 economics of the electric utility industry change so
18 enormously are subject to potential abandonment by just
19 about everybody.

20 My long-time concerns with Three-Mile
21 Island remind me, I have a photograph of the entire
22 island under water during Hurricane Agnes before TMI-1
23 went into operation. Reactors were never sited with any
24 intent for waste to remain on the sites.

25 And so that points up the depth of the

1 dilemma. That does not justify proceeding with the Yucca
2 Mountain site given the many uncertainties. And thus the
3 stronger that EPA's regulation with respect to standards,
4 the better-served will be everyone as we undertake a re-
5 evaluation, and I think it's needed of what we're going
6 to do with high-level radioactive waste.

7 Above all, I am deeply concerned that we
8 are seeing a concerted move away from the linear
9 hypothesis of dose response, when in fact a substantial
10 body of literature now exists to indicate that we should
11 be moving to substantially more conservative, not less
12 conservative protection of people and the environment.

13 And thank you again for your patience.

14 MR. PAGE: Thank you.

15 Any other speakers? All right, hearing
16 none, what we'll do is we'll temporarily adjourn and wait
17 for other speakers to show at this time. Thank you.

18 (Whereupon, following a waiting period
19 until 5:00 o'clock p.m., with no other speakers appearing
20 to testify, the hearing was concluded.)
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